

What Is Claimed Is:

1. A modular connection for connecting together
a plurality of separate elements so as to form a
5 prosthetic femoral stem component, said modular
connection comprising, in combination, a taper
junction and an engaged-fit junction.

10 2. A modular connection according to claim 1
wherein said taper junction is formed by the
interaction of a first taper with a second taper.

15 3. A modular connection according to claim 2
wherein said first taper is formed on the shaft of a
neck element, and said second taper is formed along a
portion of a sidewall defining an aperture extending
through a body element.

20 4. A modular connection according to claim 1
wherein said engaged-fit junction is formed by the

interaction of a first concentric wall with a second concentric wall.

5. A modular connection according to claim 4 wherein said first concentric wall is formed on a shaft of a neck element, and said second concentric wall is formed along a portion of the sidewall defining an aperture extending through a body element.

10 6. A modular connection according to claim 1 wherein:

15 said taper junction is formed by the interaction of a first taper with a second taper, with said first taper being formed on the shaft of a neck element, and said second taper being formed along a portion of a sidewall defining an aperture extending through a body element; and

20 said engaged-fit junction is formed by the interaction of a first concentric wall with a second concentric wall, with said first concentric wall being formed on the shaft of the neck element, and said

second concentric wall being formed along a portion of the sidewall defining the aperture extending through the body element.

5 7. A modular connection according to claim 6 wherein said first concentric wall is disposed on the shaft of the neck element coaxial with, and distal to, said first taper.

10 8. A modular connection according to claim 7 wherein said second concentric wall is disposed on the body element coaxial with, and distal to, said second taper.

15 9. A modular connection according to claim 4 wherein said first concentric wall is located internally of said second concentric wall.

20 10. A modular connection according to claim 9 wherein said first concentric wall is deformed so as

to be pressure locked against said second concentric wall.

11. A modular connection according to claim 10
5 wherein said first concentric wall is radially expanded so as to be pressure locked against said second concentric wall.

12. A modular connection according to claim 11
10 wherein said first concentric wall is formed on a shaft of a neck element, and said second concentric wall is formed along a portion of the sidewall defining an aperture extending through a body element, and further wherein said first concentric wall is
15 radially expanded by insertion of a stem element into a recess formed in the neck element.

13. A prosthetic femoral stem component
20 comprising a body element, a neck element and a stem element, with the body element, neck element and stem element being secured to one another with a modular

connection, wherein said modular connection comprises, in combination, a taper junction and an engaged-fit junction.

5 14. A prosthetic femoral stem component according to claim 13 wherein said taper junction is formed by the interaction of a first taper with a second taper.

10 15. A prosthetic femoral stem component according to claim 14 wherein said first taper is formed on the shaft of said neck element, and said second taper is formed along a portion of a sidewall defining an aperture extending through said body element.

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16. A prosthetic femoral stem component according to claim 13 wherein said engaged-fit junction is formed by the interaction of a first concentric wall with a second concentric wall.

17. A prosthetic femoral stem component according to claim 16 wherein said first concentric wall is formed on a shaft of said neck element, and said second concentric wall is formed along a portion 5 of the sidewall defining an aperture extending through said body element.

18. A prosthetic femoral stem component according to claim 13 wherein:
10 said taper junction is formed by the interaction of a first taper with a second taper, with said first taper being formed on the shaft of said neck element, and said second taper being formed along a portion of a sidewall defining an aperture extending through said 15 body element; and

20 said engaged-fit junction is formed by the interaction of a first concentric wall with a second concentric wall, with said first concentric wall being formed on the shaft of said neck element, and said second concentric wall being formed along a portion of

the sidewall defining the aperture extending through
said body element.

19. A prosthetic femoral stem component
5 according to claim 18 wherein said first concentric
wall is disposed on the shaft of the neck element
coaxial with, and distal to, said first taper.

20. A prosthetic femoral stem component
10 according to claim 19 wherein said second concentric
wall is disposed on the body element coaxial with, and
distal to, said second taper.

21. A prosthetic femoral stem component
15 according to claim 16 wherein said first concentric
wall is located internally of said second concentric
wall.

22. A prosthetic femoral stem component
20 according to claim 21 wherein said first concentric

wall is deformed so as to be pressure locked against said second concentric wall.

23. A prosthetic femoral stem component
5 according to claim 22 wherein said first concentric wall is radially expanded so as to be pressure locked against said second concentric wall.

24. A prosthetic femoral stem component
10 according to claim 23 wherein said first concentric wall is formed on a shaft of said neck element, and said second concentric wall is formed along a portion of the sidewall defining an aperture extending through said body element, and further wherein said first 15 concentric wall is radially expanded by insertion of said stem element into a recess formed in said neck element.

25. A prosthetic total hip joint comprising a
20 prosthetic femoral stem component and a prosthetic acetabular cup component, wherein said femoral stem

component comprises a body element, a neck element and a stem element, with the body element, neck element and stem element being secured to one another with a modular connection, wherein said modular connection comprises, in combination, a taper junction and an engaged-fit junction.

26. A method for restoring a hip joint, wherein the method comprises the steps of:

10 resecting the head of the femur and preparing the interior of the femur to receive a prosthetic femoral stem component;

15 assembling a prosthetic femoral stem component comprising a body element, a neck element and a stem element by selecting appropriately sized elements and securing them together with a modular connection, wherein the modular connection comprises, in combination, a taper junction and an engaged-fit junction; and

seating the prosthetic femoral stem component in
the femur.